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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/478,849 01/06/00 KELLY

S CIC-037-US

MM21/U604

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BLOOMFIELD HILLS MI 48302-1476

EXAMINER

NGUYEN, T

ART UNIT

PAPER NUMBER

2872

10

DATE MAILED:

06/04/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/478,849

Applicant(s)

KELLY, SHAWN L.

Examiner

Thong Q Nguyen

Art Unit

2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 January 2001.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-75 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-12, 15-48, 51-61, 63-69, 72 and 73 is/are rejected.
- 7) ☒ Claim(s) 6, 13-14, 49-50, 62, 70-71, 74 and 75 is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☐ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 18) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other:

DETAILED ACTION

Reissue Applications

1. Applicant is reminded of the continuing obligation under 37 CFR 1.56 to timely apprise the Office of any litigation information, or other prior or concurrent proceeding, involving Patent No. 5,706,137 , which is material to patentability of the claims under consideration in this reissue application. This obligation rests with each individual associated with the filing and prosecution of this application for reissue. See MPEP §§ 1404, 1442.01 and 1442.04.
2. The original patent, or an affidavit or declaration as to loss or inaccessibility of the original patent, must be received before this reissue application can be allowed. See 37 CFR 1.178.
3. The newly-filed oath/declaration of the present reissue application is received by the Office on 01/22/2001. As a result of the filing the new Oath/Declaration which complies with the requirement, the rejections of claims 1-75 as being based upon a defective reissue Declaration under 35 U.S.C. 251 as set forth in the previous Office action (Paper No. 4, pages 2-3, elements 3 and 4) are now withdrawn.
4. The rejections of claim 31-32, (34, 36, 38, 40)/32, 66 and (67-68, 74, 75)/66 under 35 U.S.C. 251 as being an improper recapture of claimed subject matter deliberately canceled in the application for the patent upon which the present reissue is based as set forth in the previous Office action (Paper No. 4, pages 3-4) are now withdrawn due to the amendments to the claims 31 and 32.
5. The rejections of claims 33, (35, 37, 39, 41)/33, 57-60, and 63-64 under 35 U.S.C. 251 as set forth in the previous Office action (Paper No. 4, page 4) are repeated.

In particular, the mentioned claims are rejected under 35 USC 251 as being an improper recapture of claimed subject matter deliberately canceled in the application for the patent upon which the present reissue is based. As stated in *Ball Corp. v. United States*, 221 USPQ 289, 295 (Fed. Cir. 1984).

6. Applicant's arguments as provided in the Amendment (Paper No. 5) of 01/16/2001, page 10 have been fully considered but they are not persuasive.

A) With regard to claims 33 and 57, it is noted that a) the feature concerning the modulated scanning beam of light for forming an intermediate image recited on line 2 of claim 33 is read by the features concerning means for forming an intermediate image recited in the canceled claim 1 (line 2) and canceled claim 7/1 (lines 3-4); b) the feature concerning the re-imaging means recited on lines 3-4 of claim 33 is read by the features concerning the re-imaging means recited on lines 6-8 of canceled claim 1; and c) the feature concerning the features of light redistributing means recited on lines 5-6 of claim 33 is read by the features concerning the light redistributing means recited on lines 3-5 of canceled claim 1. Applicant should note that canceled claim 1, lines 3-5 recites that a convergent reflective surface positioned proximate the intermediate image for reflecting the intermediate image. While the features recited on lines 3-5 of canceled claim 1 do not positively recite the exit pupil as recited in claim 33; however, such a feature clearly an inherent feature read from the scope of canceled claim 1 in the light of description of the mentioned means in the original specification.

B) With regard to the features concerning the shape of the light redistributing means and re-imaging means recited in claims 35, 37, 39, 41, 58-60, 63, 64 such

Art Unit: 2872

features are read from the features of a light redistributing means and re-imaging means recited in canceled claims 1 and 7/1 in the light of the original specification.

Drawings

7. The objection to the drawings as set forth in the previous Office action (Paper No. 4, page 4) is withdrawn due to the amendments made to the specification listed in the Amendment (Paper No. 5, pages 1-2).

Specification

8. The lengthy specification which is amended by the Amendment (Paper No. 5) of 01/16/2001 has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 112

9. The rejections of claims 44, 45 and 65 under 35 USC 112, first paragraph as set forth in the previous Office action (Paper No. 4, pages 5-6) are now withdrawn for the following reasons: First, the cancellation of claims 44 and 45; and Second, applicant's arguments with respect to the rejection of claim 65 are persuasive.

10. The rejections of claims 3, 6, 42-43, and 53-56 under 35 USC 112, second paragraph are now withdrawn due to the amendments to claims 3, 6, 42-43, and 53-56 as listed in the Amendment, pages 2-4.

Claim Rejections - 35 USC § 102

Art Unit: 2872

11. The rejection of claim 31 under 35 USC 102(e) over Kato et al (U.S. Patent No. 5,187,597) is overcome by the amendment to the claim as set forth in the Amendment to the claim.

Claim Rejections - 35 USC § 103

12. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

13. The rejection of claim 31 under 35 U.S.C. 103(a) as being unpatentable over Wood (U.S. Patent No. 4,669,810) in view of Kato et al (U.S. Patent No. 5,187,597), and the rejection of claim 31 under 35 U.S.C. 103(a) as being unpatentable over Freeman (U.S. Patent No. 5,477,385) in view of Kato et al (U.S. Patent No. 5,187,597) are now withdrawn due to the amendments to the claim as set forth in the Amendment to the claim.

14. Claims 32-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kato et al (U.S. Patent No. 5,187,597) in view of Opitek et al (U.S. Patent No. 3,915,548) (both of record).

Kato et al disclose an optical display apparatus. The apparatus comprises an information source (1), a means (3) in the form of a lens for forming an intermediate image, a concave holographic reflector (4) disposed at the position of the intermediate image for reflecting the intermediate image to an observer. The only feature missing from the display system provided by Kato et al is that it does not disclose the use of a system for re-imaging the intermediate image wherein the re-imaging system forms an exit pupil. With regard to the feature of an re-imaging system for forming an exit pupil as

Art Unit: 2872

claimed, such feature is merely that of a preferred embodiment, and no criticality has been disclosed. The support for this conclusion is found in the present specification at column 3 (lines 24-27) in which applicant has admitted that the re-imaging means can be an human eye lens. In this aspect, the intermediate image formed on the holographic reflector (4) will be re-imaged by the eye lenses of the observer as provided by Kato et al meets the requirement/feature claimed. Further, the use of a re-imaging means forming an exit pupil wherein the re-imaging means is used to re-image an intermediate image provided by a system having a source and a lens for forming the image from the source is disclosed in the art as can be seen in the system provided by Opitek et al. In particular, Oppitek et al teach the use of an optical element (20') for providing an exit pupil for re-imaging the intermediate image provided by the source (21') and the focusing lens (25'). See columns 8-10 and 34 and fig. 18, for example. With regard to the feature concerning the type of the source for providing light to the imaging means missing from the system of Kato et al, it is also noted that the feature concerning the type of the information source as claimed is merely that of a preferred embodiment and no criticality has been disclosed. The support for this conclusion is found in the present specification at column 4 (lines 20-23) in which applicant has admitted that the information source can be a cathode-ray-tube or a liquid crystal display. In this aspect, the optical apparatus of Kato meets the requirement. See Kato et al, column 1, lines 36-38. Furthermore, the use of an information source in the form of a source providing modulated scanning light in place of a cathode-ray-tube is known to one skilled in the art as can be seen in the optical system provided by Opitek et al. In particular, at

Art Unit: 2872

column 6 (lines 64-68), Opitek et al teach that the image source can be a cathode-ray-tube or a modulated laser scanning system. Thus, absent any showing of criticality as well as the specific structure of the image source and the so-called "re-imaging" means, it would have been obvious to one skilled in the art at the time the invention was made to modify the optical system of Kato et al by using a modulated laser scanning system or other information source known to one skilled in the art and an optical element in the form of a combiner as suggested by Opitek et al in the system of Kato et al for the purpose of providing a re-imaging system having an exit pupil for the purpose of displaying an re-image of an intermediate image produced by a modulated laser scanning system.

15. Claims 32-45, 66-69, and 72-73 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wood (U.S. Patent No. 4,669,810) in view of Kato et al (U.S. Patent No. 5,187,597) and Opitek et al (U.S. Patent No. 3,915,548) (all of record).

Wood discloses an optical system having an information source in the form of a cathode-ray-tube (20), a means (26) including a plurality of lens elements for forming an intermediate image (54) of the information source, a reflective holographic element (28) disposed near the intermediate image for reflecting the image towards an optical system (32,34,36) for re-imaging the intermediate image for the purpose of providing an image to an observer. It is also noted that the optical system for re-imaging as described by Wood at column 3 will provide a virtual image of the intermediate image to the observer though an exit pupil viewable by the eyes of the observer. See Wood, columns 3-4 and 6-7 and figs. 2-4. It is also noted that the holographic element (28) has a curved surface

Art Unit: 2872

and used to correct for the aberrations caused by the re-imaging means as can be seen in columns 3-4 and 6. While Wood teaches the arrangement of the holographic element (28) near the position of the intermediate image formed by the imaging means (26), he does not clearly state that the position of the holographic element is located proximately to the position of the intermediate image as claimed. However, the use of an information source, a means for forming an image of the source, and a curved reflecting element at the position of the intermediate image is suggested to one skilled in the art as can be seen in the optical system provided by Kato et al. See column 8 and fig. 9. Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the optical system provided by Wood by rearranging the position of the holographic element (28) at a position proximately or on the position of the intermediate image formed by the imaging means as suggested by Kato et al for the purpose of providing an image with better focus and brightness while still maintaining the function of correcting the image aberrations occurred by the imaging means and the re-imaging means in the system.

With regard to the feature concerning the type of the source for providing light to the imaging means. In other words, while Kato et al discloses the use of an information source, and Wood discloses that the image source is a cathode-ray-tube, both Wood and Kato et al do not clearly state the information source can be a source which provides a modulated scanning light. However, the feature concerning the type of the information source as claimed is merely that of a preferred embodiment and no criticality has been disclosed. The support for this conclusion is found in the present

Art Unit: 2872

specification at column 4 (lines 20-23) in which applicant has admitted that the information source can be a cathode-ray-tube or a liquid crystal display. In this aspect, each the optical apparatus of Kato et al or Wood meets the requirement. Furthermore, the use of an information source in the form of a source providing modulated scanning light in place of a cathode-ray-tube is known to one skilled in the art as can be seen in the optical system provided by Opitek et al. In particular, at column 6 (lines 64-68), Opitek et al teach that the image source can be a cathode-ray-tube or a modulated laser scanning system. Thus, absent any showing of criticality as well as the specific structure of the image source in the form of the modulated scanning light source, it would have been obvious to one skilled in the art at the time the invention was made to modify the combined product as provided by Wood and Kato et al by using a modulated laser scanning system or other information source known to one skilled in the art in the system of Kato for the purpose of satisfying a particular application or for the purpose of providing a system with better optical performance.

16. Claims 1-2, 7, 10-12, 15-16, 29 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Macken (U.S. Patent No. 4,480,169) (of record).

Macken discloses an optical system. The optical system comprises a light source means having a laser source (10), a focusing lens (14), a scanning system (16,18), a cylindrical mirror (20) having a concave surface facing the direction of the incident light beam, a second focus lens (24) for re-imaging the intermediate image formed by the light source means and the first focusing lens (14). The cylindrical mirror (20) is disposed at the position of the intermediate image formed by the focusing lens (14). As

Art Unit: 2872

a result of such an arrangement of the mirror at the position of the intermediate image, the image formed by the focusing lens (14) will be reversed in orientation after it is reflected from the mirror (20). As such, the optical system provided by Macken meets all of the limitations of the mentioned claims except that Macken does not clearly state that the lens (14) and the lens (24) are similar to each other. However, it would have been obvious to one skilled in the art at the time the invention was made to use the same type of lens for each of the focusing lenses (14) and (24) for the purpose of canceling the aberrations occurred in the system due to the aberrations produced by the first focusing lens (14). The support for this conclusion is found in the second embodiment provided by Macken in which he teaches the use of two mirrors (40 and 50) having the same shape and power, i.e., both the first and second mirrors are concave spherical mirrors. See column 7 and fig. 4.

17. Claims (3-5), (8-9), 17-28, 31-48, 51-61, 63-65, as best as understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Macken (U.S. Patent No. 4,480,169) in view of Kato et al (U.S. Patent No. 5,187,597) (of record).

The optical system as provided by Macken as described above meets all of the limitations of the device as claimed except the feature that the cylindrical mirror having a light redistributing surface for the purpose of expanding the core of incident light beam and its exit pupil. However, the use of a curved reflecting surface having a means for expanding core of an incident light beam is suggested to one skilled in the art as can be seen in the optical system provided by Kato et al. In particular, Kato et al disclose an optical display apparatus. The apparatus comprises an information source (1), a means

Art Unit: 2872

(3) in the form of a lens for forming an intermediate image , a concave holographic reflector (4) disposed at the position of the intermediate image for reflecting the intermediate image to an observer. Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the optical system of Macken by using a curved reflecting mirror having a light redistributing surface in the form of a holographic pattern as suggested by Kato et al for the purpose of expanding the core of a light beam incident on the curved reflective element.

Double Patenting

18. The rejection of claims 1-3, 5, 9-12, 14-20, 25-31, 47-49, 52-55 and 56 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 5-8, 10-12 and 17 of U.S. Patent No. 5,673,146 is overcome by the filing of a Terminal Disclaimer by applicant on 01/22/2001.

Response to Arguments

19. Applicant's arguments with respect to claims 1-75 have been considered but are moot in view of the new ground(s) of rejection.

Allowable Subject Matter

20. Claims 6, 13-14, 49-50, 62, 70-71, 74 and 75 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicant should note that the claims when amended should be made in a suitable manner which avoids any double patenting objections.

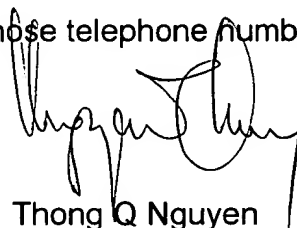
Art Unit: 2872

Conclusion

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thong Q Nguyen whose telephone number is 703 308 4814. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cassandra Spyrou can be reached on 703 308 1687. The fax phone numbers for the organization where this application or proceeding is assigned are 703 308 7724 for regular communications and 703 308 7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0956.



Thong Q Nguyen
Primary Examiner
Art Unit 2872

April 8, 2001